ITA 2.0 - Requirements Traceability Matrix

Num	Area	Application(s)	Category	Business Requirement and Description	Release	Priority	Reviewed	Implementation Note	Date Logged	ETC (in Days)	Assumptions
100	**Upgrades**				2.0						
101	Apply patch to ND for synchronization issues		Software - NetworkDispatcher	The ND servers shall be able to synchronize their heartbeats between the primary and secondary servers.	2.0	H		The ND servers' heartbeats are sometimes out of synch. Applying a patch should resolve this problem	4/4/2001	N/A	This does not apply anymore. The patch has turned into an upgrade to edge server with patch on top of that to ND 3.6
102	Interwoven Upgrade		Software - Interwoven	The content management application shall be able to deploy RTF Files.	2.0	L		The ITA is currently running Interwoven 4.2.1, build 1539. The only application within the ITA which has Interwoven upgrade requirements is IFAP. The IFAP application is a virtual library of financial aid information that students can access. Updates to IFAP are made via Interwoven on a daily basis with several different kinds of files including .pdf, .doc, HTML and .rtf. The current version of Interwoven handles all of these updates well except for .rtf files. These "rich text format" files are typically embedded into word documents as graphs, graphics, charts, banners etc. The IFAP application has developed a work around by adding the .rtf images back into HTML after the word files are converted. This is a time consuming process that could be permanently fixed by upgrading to a higher version of Interwoven which supports .rtf files. Current upgrade paths include version 4.5 or 5.0. The ITA is investigating the features of each release and any risks associated with them.	4/4/2001	20	This task requires that a separate server be identified for Interwoven Open Deploy and Teamsite installation and testing.
103	Operating Systems Upgrade		Operating Systems	The ITA 2.0 architecture shall support a 64 bit operating system.	2.0	M		The ITA team will need to research potential issues of upgrading to Sun 2.8 prior to porting all applications to the upgraded version. An upgrade from Sun 2.6 to 2.8 would allow for greater overall performance of all deployed applications. The 2.8 architecture makes use of the 64 bit architecture which will improve the performance speed of most applications. Need to verify that all ITA 2.0 products can be ported to version 2.8, currently version 3.05 of WAS cannot run on 2.8 of Sun	4/4/2001	5	This task would include researching and documenting products that can be upgraded. This estimate does not include any testing.
104	WebSphere Application Server (WAS) Upgrade		Software - WAS	ITA 2.0 shall upgrade new development efforts to WAS 3.5.	2.0	H		Need to move to new versions to support new Servlet (2.2) and JSP (1.1) specs, also allows load balancing of the WAS boxes, failover, and allows for admin database to be moved to Oracle.	4/4/2001	3	Estimate is based on building WAS 3.5 enviroment in Solaris or Hp enviroments. (Already Complete!) This estimate does not include migrating or verifing application data.
105	WAS Security		Software - WAS	WAS shall be secure against outside hackers or internal non-WAS administrators.	2.0	H		Currently WAS security uses the Solaris password file as its user repository. This requires WAS to be started as root so that WAS may use Solaris APIs to read the Solaris user repository. WAS must have security enabled to ensure high availability.	4/4/2001	3	Estimate is based on building WAS 3.5 enviroment in Solaris or Hp enviroments. (Already Complete!) This estimate does not include migrating or verifing application data.

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106	User Login and WAS Startup		Software - WAS	WAS shall be started with a non-root user id. Administrators and application support people shall be able to stop, start, and configure WAS without having to use the root password.	2.0	H		The implementation of this requirement is dependent on the implementation of LDAP. ITA 2.0 shall use LDAP to develop a mechanism that shall allow users to log in as non-root. This will require an upgrade to version 3.5 of WAS. WAS needs to be started using a non root id, so that application operations can control the application without the need of a system admin.	4/4/2001	15	Assumption is that this is not part of the LDAP implementation. The work is to interface WAS to LDAP.
107	WAS Recovery		Software - WAS	The WAS system shall recover from external system or database failures.	2.0	H		Databases are brought down for backups and systems are brought down for maintenance. The WAS system should be able to recover without being restarted.	4/4/2001	5	Assumption is that this item is testing and documenting how WAS connects or does not connect after a database down time. This task would probably include suggestions as to what programmers should expect and how to handle outages.
108	WAS performance monitor		Software - WAS	ITA 2.0 shall implement the WAS performance monitor.	2.0	H		ITA 2.0 shall use WAS performance monitor to verify how many sessions are being used, the size of the sessions, and how long JSPs take to run.	4/4/2001	5	This estimate is to document usage.
109	IHS Upgrade		Software - IHS	ITA shall upgrade the new development and test web servers to IHS v. 1.3.12.	2.0	H		The web servers must be upgraded to remain compatible with the WAS development and test servers which are upgraded to v. 3.5.	4/4/2001	1	Document Install. Already done in development and test
110	NetworkDispatcher Upgrade		Software - NetworkDispatcher	The application shall use Custom Advisor scripts that monitor the web server, application servers, and Autonomy. These scripts shall provide e-mail notification when the web or application server go down.	2.0	H		Currently, CA Unicenter TNG is unreliable in providing outage information. This functionality will be provided by building scripts that use the Java Mail service to send out mail or pages. Currently the NetworkDispatcher (ND) advisor will only detect outage of IHS and provide redirecting to the box that is up and running. The system will allow for failover between the web server and app server. If one of the app servers goes down, the web server will redirect traffic to the app server that is up. ND Daemons need to be installed on web and app servers in order to provide feedback to Edge Server.	4/4/2001	15	Task includes design, build and document Custom Advisor Scripts for ND.
111	NetworkDispatcher Upgrade		Software - NetworkDispatcher	The load balancer shall have the capability to provide intelligent content-based routing, proxy caching, and intelligent load balancing which will include server affinity, performance feedback from web servers to load balancer.	2.0	M/L		Upgrade from Network Dispatcher to Edge Server.	4/4/2001	10	This would include installation of Interactive Session Support and Content Based Routing with Web Traffic Express as well as documentation and testing.
112	Load Balancing		Software - NetworkDispatcher	The system shall support true load balancing by making use of session and server affinity.	2.0	M/L		ITA 2.0 shall implement this requirement by implementing ND load balancing. Currently only IP affinity is used which forces clients with the same IP address to the same Web Server (this is also known as sticky port).	4/4/2001	5	This task represents configuring and documenting rules for WTE and SSI.
113	Network Dispatcher development and test environment		Software - NetworkDispatcher	The ITA team shall create and maintain a development/test environment for NetworkDispatcher	2.0	H		ITA 2.0 shall create and maintain a development/test environment as there is currently no development or test environment for Network Dispatcher. This environment will be used to test fix packs and new configurations. Currently, the only ND boxes are those in production.	4/4/2001	1	This task only represents software loading of ND 3.6.

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114	Autonomy Upgrade		Software - Autonomy	The ITA team shall upgrade Autonomy from v. 2.1 to 3.0.	2.0	M/L		Prior to upgrading Autonomy, the ITA team will need to test the new product version with WAS. ITA will also research how much the upgrade will cost. Autonomy 2.0 currently uses CGI to perform queries. Autonomy 3.0 uses JSPs instead of CGI but is not certified on WAS. If possible, SFA should move away from CGI, because it is not good due to having to maintain of C programs, performance, security.	4/4/2001	15	This task would not upgrade the use of Autonomy 2.1 by the existing applications (IFAP, Schools Portal, and Intranet).
115	Oracle Upgrade		Database	The ITA team shall research and evaluate the possibility of upgrading to Oracle 9i.	3.0	L		The ITA team may also evaluate the possibility of using Oracle LDAP.	5/1/2001	5	This task includes research and documentation.
200	**Common Services**				2.0						
201	Exception Handling	All	Common Services - Exception Handling	The ITA 2.0 architecture shall provide an Exception Handling framework.	2.0	H		There is currently no standard way to throw and handle exceptions. Applications such as IFAP throw many different kinds of exceptions but only display one message to the user. Furthermore, when an application server comes down in production, there is no logging & exception handling framework that would allow ops people to understand what went wrong and make the appropriate fixes.	4/4/2001	30	
202	Logging	All	Common Services - Logging	The ITA 2.0 architecture shall provide a Logging framework.	2.0	H		The WAS product out of the box does not allow for flexible logging, Log files cannot be moved nor renamed. When an application server comes down in production, there is no logging & exception handling framework that would allow ops people to understand what went wrong and make the appropriate fixes. The logging framework allows for various levels of logging including minimized logging in production and verbose logging in development.	4/4/2001	30	
203	Persistence	All	Common Services - Persistence	The ITA 2.0 architecture shall provide a Persistence framework.	2.0	M		A persistence framework encapsulates the behavior needed to make objects persistent (i.e., a persistence framework reads, writes, and deletes objects to/from permanent storage.	4/4/2001	40	

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204	Component Factory	All	Common Services - Component Factory	The ITA 2.0 architecture shall provide a Component Factory framework	2.0	L		This framework defines a general and extensible factory mechanism. It goes beyond simplifying EJB and JNDI access by enabling developers to completely decouple how objects and components are instantiated from their use. In addition, the meta-information used to define not only the object production mechanism, but surrounding context is provided via configuration properties thereby allowing production to be changed with minimal effort. As a result the Component Factory provides a very powerful service, and enables the definition of clear migration strategies from one architectural approach to another. The factory includes standard methods of producing objects when parameters are passed, common parameters to be passed when producing objects, standards for coding and designing objects, examples for using the Component Factory Framework	4/4/2001	20	
205	Session Management	All	Common Services - Session Management	The ITA 2.0 architecture shall provide a Session Management framework.	2.0	M		The ITA 2 Session Framework will be custom developed by the ITA 2 team to simplify, standardize, and extend the use of session information within the J2EE standard. The session wrapper class provides a common way to access session information, decouples session information from the request, session, and application J2EE contexts, and wraps WebSphere session extension classes. The Session utility class provides utilities for sessions that are common across enterprise applications, such as detecting whether a browser accepts cookies. The Session class for large sessions provides a best practices and higher performance implementation for applications requiring storage of large amounts of session information. The ITA 2 Session Framework will be integrated with the ITA 2 Servlet Framework for seamless use.	4/4/2001	40	

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206	Servlets	All	Common Services - Servlet	ITA 2.0 architecture shall provide a Servlet framework.	2.0	M		The ITA 2 Servlet Framework defines a servlet to accomplish a major application subsystem and divides it into one or more conversations. Each conversation consists of a set of request/response exchanges to complete a single activity. Each conversation in turn is divided into one or more commands that represent a single request/response exchange between the client and server. Together these servlets, conversations, and commands map to classes for conversation, exchange activity, and exchange presentations that represent the heart of the ITA servlet framework. The conversation class correlates commands with exchange activities and exchange presentations. The exchange activity class executes that business logic of the user requests. The exchange presentation class formulates and sends a response to the user.	4/4/2001	30	
207	Mail	All	Common Services - Java Mail	The ITA 2.0 architecture shall provide a Mail framework.	2.0	H		The ITA 1.0 applications that are currently in production do not have a reliable java mail service. The are two mail services in production at the moment. One is based on batch processing and the other is based on Java Mail. The Java mail service has performance issues and the batch mail has stability issues. The existing Java mail service can be modified to a more simple API that developers can use with more robust features.	4/4/2001	20	
208	FTP	All	Common Services - FTP	The ITA 2.0 architecture shall provide a FTP framework.	2.0	H		The File Transfer Protocol (FTP) framework provides the ability to transfer files between different platforms in the SFA environment.	4/4/2001	20	
209	Security	All	Common Services - Security	The ITA 2.0 architecture shall provide a Security framework.	2.0	L		The security framework will provide an interim bridge between applications' current unique security solutions and the future selection of a Web Access Control (WAC) tool. The security framework will allow for the authorization and authentication of users on SFA applications. This framework will authenticate users based on biometric information. Once a user has been authenticated, they may attempt to access a protected resource within a web based application such as a link or button. The user will be authorized to view the protected resource if the security role and security privileges match.	4/4/2001	30	

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210	WAS Timeout	All	Common Services - WAS Timeout	The ITA 2.0 architecture shall provide a WAS Timeout framework.	2.0	L		The timeout framework will supplement the basic WebSphere timeout services that allow for timeouts to be set for end-to-end transactions on a server level and transactions to JDBC datasources on a datasource level. The timeout framework will be built to utilize a pool of timers. The usage of the pool will allow applications to reuse timers and avoid repeatedly incurring the overhead associated with creating new threads each time an operation needs to be monitored for timeout. The configuration of the timer pool will be application independent and allow for multiple timeout intervals within an application. With this approach, an application can determine what is acceptable without having any knowledge of the application's timeout settings. The timer can also utilize the logging services and the exception handling methodology being implemented in the ITA R2.0 architecture.	4/4/2001	30	
211	Configuration	All	Common Services - Configuration	The ITA 2.0 architecture shall provide a Configuration framework.	2.0	M		The configuration framework will provide a standard for configuration file input. The configuration settings for an application will reside in a single implementation of the Configuration Manager. The framework will provide simplified configuration file reading. The mechanism for reading the configuration files should be abstracted into the architecture layer to avoid any duplicate file reading logic being written with the application code. The configuration framework will also abstract the representation of configuration files (the style in which they are written) so that if the files change formats, only the configuration framework will require coding changes – no coding changes will need to be made within the application or architecture code.	4/4/2001	20	
212	Search	All	Common Services - Search	The ITA 2.0 architecture shall provide a Search framework.	2.0	M/L		The search framework simplifies, standardizes, and improves the use of the Autonomy search engine. This framework complies with J2EE standards instead of using CGI as in the current search engine interface. The framework consists of a search wrapper class that provides a common way to access the Autonomy API and utilize its features.	4/4/2001	40	
213	On-line Help	All	Common Services - On-line Help	The ITA 2.0 architecture shall provide an On-line Help framework.	2.0	L		The on-line help and FAQs frameworks will be implemented together. The same approach for storing and retrieving help and FAQs will be used by the frameworks.	4/18/2001	20	
214	Frequently Asked Questions (FAQs)	All	Common Services - FAQs	The ITA 2.0 architecture shall provide a FAQs framework.	2.0	L		The on-line help and FAQs frameworks will be implemented together. The same approach for storing and retrieving help and FAQs will be used by the frameworks.	4/18/2001	20	

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215	Registration	EIP	Common Services - Registration	The ITA 2.0 architecture shall provide a Registration framework.	2.0	M		The Registration framework shall enable users to register on sites. The framework will provide the functionality to provide users with the ability to request a username and password. The framework shall provide the username and password in real-time.	5/4/2001	30	
216	Login	EIP	Common Services - Login	The ITA 2.0 architecture shall provide a Login framework.	2.0	M		The Login framework shall provide applications with the ability to enable users to login and authenticate the username and password. The framework will utilize existing WAS authorization APIs.	5/4/2001	30	
217	Personalization	EIP	Common Services - Personalization	The ITA 2.0 architecture shall provide a Personalization framework.	2.0	M		The Personalization framework shall enable the capability for a registered, logged-in user to personalize their home page. Once logged into the site, a user's default Home Page will appear. The first name a user registers and logs onto the site, their home page is identical to the default home page. The user will have the capability to personalize their password and add/modify web links.	5/4/2001	30	
218	Calendar	EIP	Common Services - Calendar	The ITA 2.0 architecture shall provide a Calendar framework.	2.0	M		The Calendar framework shall add a static calendar to display on the application's page. The calendar data shall be static and will not contain user-specific calendar information.	5/4/2001	15	
219	Feedback	EIP	Common Services - Feedback	The ITA 2.0 architecture shall provide a Feedback framework.	2.0	M		The Feedback framework shall provide the functionality to display the processes for reporting feedback to the application. For email feedback, the email functionality shall be provided by the client browser configuration.	5/4/2001	30	
220	Headlines	EIP	Common Services - Headlines	The ITA 2.0 architecture shall provide a Headlines framework.	2.0	M		The Headlines framework shall provide the capability to retrieve static headline data and display it on the application's page.	5/4/2001	30	
300	**Best Practices and Coding Standards**				2.0						
301	Java coding best practices	All	Development Standards	ITA 2.0 shall provide Java coding standards and best practices to the application teams.	2.0	H		This deliverable is supplemental to the Java Coding Standards deliverable 16.1.4. Naming conventions are currently in place, but there is not a full set of code standards that apply to all the build artifacts such as J2EE, HTML, JavaBeans, EJBs, Servlets, JSPs, etc. Furthermore, team leads do not appear to be enforcing code reviews to ensure that developers are adhering to standards. ITA has found very dissimilar code in production including stubbed out method calls and code with few comments.	4/4/2001	20	
302	SQL coding standards and best practices	All	Development Standards	ITA 2.0 shall provide SQL coding standards to the application teams.	2.0	L		No SQL coding standards are in place at the moment which can guide developers around developing high performance SQL statements, advise them when to use stored procedures or embedded SQL code.	4/4/2001	10	
303	Usability Standards	All	Development Standards	ITA 2.0 shall develop Application Usability Standards	2.0	L		The Application Usability Standards shall provide general guidelines for application architects and developers to create more user-friendly applications.	4/4/2001	10	

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304	Common Look and Feel Standards	All	Development Standards	ITA 2.0 shall develop Common Look and Feel Standards	2.0	L		The Common Look and Feel Standards shall provide an enterprise-wide guideline to ensure that all SFA applications provide a consistent look and feel to their users.	4/4/2001	10	
400	**Technical Architecture Reviews**				2.0						
401	Architecture Reviews	FAFSA	ITA Reviews	The ITA team shall participate in architecture review meetings with FAFSA.	2.0	H		The ITA team currently participates in weekly architecture review meetings with FAFSA. These meetings should continue until go live to provide an adequate amount of guidance and support of ITA 2.0	4/4/2001	5	
402	Architecture Reviews	CBS2	ITA Reviews	The ITA team shall participate in architecture review meetings with CBS2.	2.0	H		The ITA team currently participates in weekly architecture review meetings with the CBS. These meetings should continue until go live to provide an adequate amount of guidance and support of ITA 2.0	4/4/2001	5	
403	Code Reviews	FAFSA	ITA Reviews	ITA shall participate in code reviews of FAFSA.	2.0	H		This will probably not happen since FAFSA is so close to performance test	4/4/2001	N/A	
404	Code Reviews	CBS2	ITA Reviews	ITA shall participate in code reviews of CBS2.	2.0	H		CBS2 has a budget for an independent firm to conduct a code review.	4/4/2001	N/A	
405	bTrade MQSeries Review	COD	ITA Reviews	The ITA 2.0 team shall provide technical architecture support for the TSYS/COD development effort. Specifically, the team shall review the system architecture and API design for the bTrade/MQSeries integration piece of the effort.	2.0	M			5/1/2001	10	
406	COD XML Review	COD	ITA Reviews	The ITA 2.0 team shall provide XML integration support for the COD XML development effort. Specifically, the team shall help to establish XML design guidelines and standards, and review the prepared XML, DTD, and XML Schema designs.	2.0	M			5/1/2001	40	
500	**Research and Evaluation**				2.0						
501	HP / WAS 3.5 Test	All	Software - WAS; Hardware - HP	The ITA 2.0 team shall test WAS 3.5 on HP servers.	2.0	M		In order to make use of available hardware, the ITA needs to test its products on HP servers. Ganesh has asked that the ITA team start this test with WAS 3.5. WAS 3.5 has only recently been certified to run on the current HP operating system, the ITA team needs to verify that it will run adequately with its applications.	4/4/2001	10	
600	**Operations Support**				2.0						
601	Operations Scripts	All		The ITA 2.0 team shall create operations scripts to build application servers, update vhosts, and startup/shutdown the WAS server.F46	2.0	L		Scripts will be written in the WebSphere scripting language called wscp (available only in WAS 3.5). The common data format for all scripts will be XML. The WAS command line processor is tcl based scripting language to provide administrative command line scripts to control WAS. WSCP can build configurations, change configurations within	4/4/2001	10	
602	ITA Release 2.0 handbook	All	Operations Standards	The ITA 2.0 shall create a handbook for applications entering the ITA environment.	2.0	M		The handbook shall provide information and processes necessary for applications entering the ITA environment and platform.	4/4/2001	20	

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603	Environment Scripts	All	Environments	The ITA 2.0 team shall provide procedures for application teams to build their own environments.	2.0	M		The implementation of this requirement may be through either documented procedures or automated scripts for creating standardized application environments. These procedures will cover the base installation. Custom configurations will be the responsibility of the application teams.	4/4/2001	10	